

Notice of Allowability

Application No.

773,041

10/20/03

Examiner

Krista M. Flanagan

Applicant(s)

JUN, JUNG SIG

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment filed on 20 October 2005.
2. ☒ The allowed claim(s) is/are 1-23.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Jason Far-hadian on Friday, December 2, 2005.

The application has been amended as follows:

- Line 2 of claims 1, 5, 8, 16 and 21, have been amended to omit "comprising" at the end of the line and add the word -comprises-.
- Claim 8 has been amended from "The digital TV receiver of claim 1, wherein the symbol clock recovery further comprising: a multiplying operator for multiplying each other the OQAM real/imaginary component signals outputted from the OQAM converter and filter, and multiplying it by a predetermined constant, and squaring and outputting the calculation; and an adder for adding the two outputs from the squaring operator and the multiplying operator, and outputting the timing error detector and recovery, wherein the squaring operator squares each of the OQAM real/imaginary component signals outputted from the OQAM converter and filter, and outputs difference between the two squared signals." To now read - The digital TV receiver of claim 1, wherein the symbol clock recovery further comprises: a multiplying operator for multiplying each of the OQAM real/imaginary component signals outputted from the OQAM converter and filter by each other, and multiplying the result by a predetermined constant, and squaring and outputting the calculation; and an adder for adding the two outputs from the squaring

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operator and the multiplying operator, and outputting the calculation to the timing error detector and recovery, wherein the squaring operator squares each of the OQAM real/imaginary component signals outputted from the OQAM converter and filter, and outputs the difference between the two squared signals.-

- Claim 16 has been amended from “A digital TV receiver including an A/D converter, a carrier recovery, and a symbol clock recovery, wherein the symbol clock recovery comprising: an OQAM converter and filter for converting each of the digital base-band real/imaginary signals in a VSB type into OQAM real/imaginary component signals, and performing a high pass-band filtering on the OQAM real/imaginary component signals for removing information of data section; a squaring operator for squaring each of the OQAM real/imaginary component signals outputted from the OQAM converter and filter, and outputting difference between the two squared signals; a squarer for squaring the signal outputted from the squaring operator, and outputting the calculation; a multiplying operator for multiplying each other the OQAM real/imaginary component signals outputted from the OQAM converter and filter, and multiplying it by a predetermined constant, and squaring and outputting the calculation; an adder for adding the two outputs of the squarer and the multiplying operator, and outputting the calculation for detecting timing error information; a timing error detector and recovery for detecting timing error information from the signal outputted from the adder, and generating and outputting at least two times the frequency of the symbol clock corrected from the detected timing error information.” To now read -A digital TV receiver including an A/D converter, a carrier recovery, and a symbol clock recovery, wherein the symbol clock recovery comprises: an OQAM converter and filter for converting each of the digital

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base-band real/imaginary signals in a VSB type into OQAM real/imaginary component signals, and performing a high pass-band filtering on the OQAM real/imaginary component signals for removing information of data section; a squaring operator for squaring each of the OQAM real/imaginary component signals outputted from the OQAM converter and filter, and outputting the difference between the two squared signals; a squarer for squaring the signal outputted from the squaring operator, and outputting the calculation; a multiplying operator for multiplying each of the OQAM real/imaginary component signals outputted from the OQAM converter and filter by each other, and multiplying the result by a predetermined constant, and squaring and outputting the calculation; an adder for adding the two outputs of the squarer and the multiplying operator, and outputting the calculation for detecting timing error information; a timing error detector and recovery for detecting timing error information from the signal outputted from the adder, and generating and outputting at least two times the frequency of the symbol clock corrected from the detected timing error information.-

REASONS FOR ALLOWANCE

2. The following is an examiner's statement of reasons for allowance: Prior art fails to disclose a digital television receiver for converting from vestigial side band type transmission signals to offset quadrature amplitude modulation signals where the real and imaginary signals are then squared and added together and the result is squared once more and output for detecting timing error information, which is used to generate at least two times the frequency of the symbol clock. The efficiency of the symbol clock recovery is increased by increasing the power of the signal for obtaining the timing information by using the squarer.

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3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

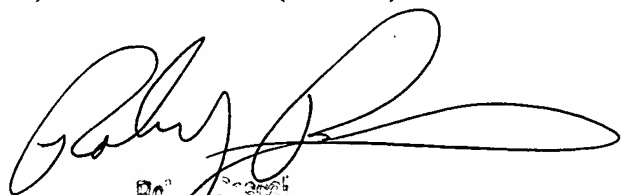
Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krista M. Flanagan whose telephone number is (571) 272-2203. The examiner can normally be reached on Monday - Friday, 8 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Pascal can be reached on (571) 272-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

K. Flanagan
20051201



Robert J. Pascal
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